

# PRIMITIVE MOTOR REFLEXES

## & THEIR IMPACT ON A CHILD'S FUNCTION

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### WHAT IS A REFLEX?

A stereotyped response to a sensory stimulus.

### WHAT IS INTEGRATION?

The inhibition by higher centers of neurological control which modify the reflex in such a way that the pattern of response is no longer stereotypical.

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## ASYMMETRICAL TONIC NECK REFLEX (ATNR)

### ONSET

0 - 2 months

### INTEGRATION

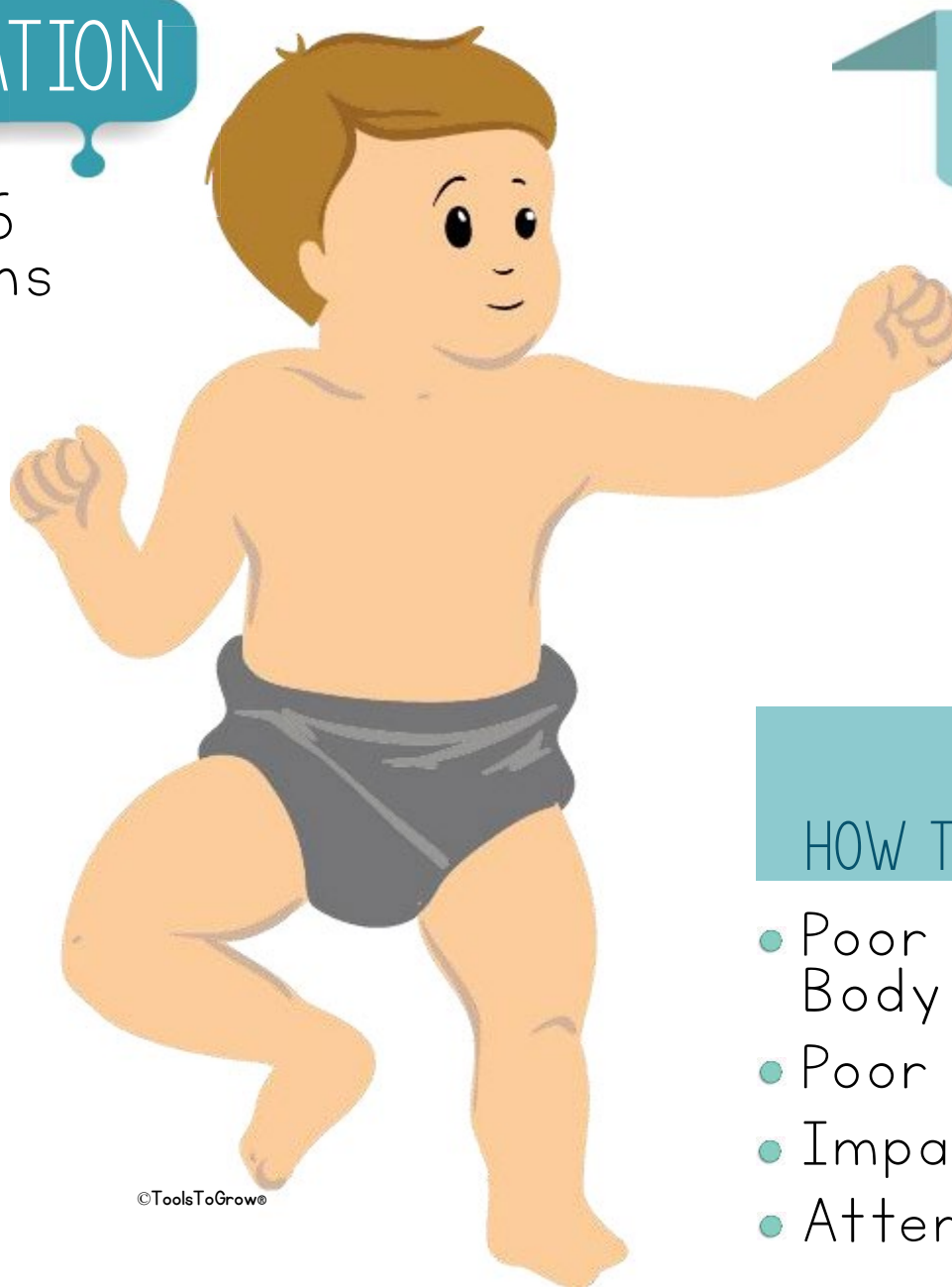
4 - 6 months

### STIMULUS

Rotation of the head.

### RESPONSE

- Arm and leg on the "jaw" side extends.
- Arm and leg on the "skull" side flex.



### IMPORTANCE

- Assists with early eye-hand regard.
- Provides vestibular stimulation.
- Changes the distribution of muscle tone.

### SIGNIFICANCE IF PERSISTS

- May impair ability to roll, use hands smoothly together at midline
- Poor visual regard for object(s) being held.
- Poor balance.
- May impair creeping or crawling.

### INFLUENCE OF RETAINED ATNR

HOW THESE MAY PRESENT IN EARLY CHILDHOOD & SCHOOL AGE CHILDREN

- Poor Isolation of Individual Body Movements
- Poor Sitting Posture
- Impairments in Gait
- Attention and Focus
- Impaired Scissor Use
- Impaired Pre-Writing and Writing
- Impairments in Reading

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## SYMMETRICAL TONIC NECK REFLEX (STNR)

### ONSET

4 - 6 months

### INTEGRATION

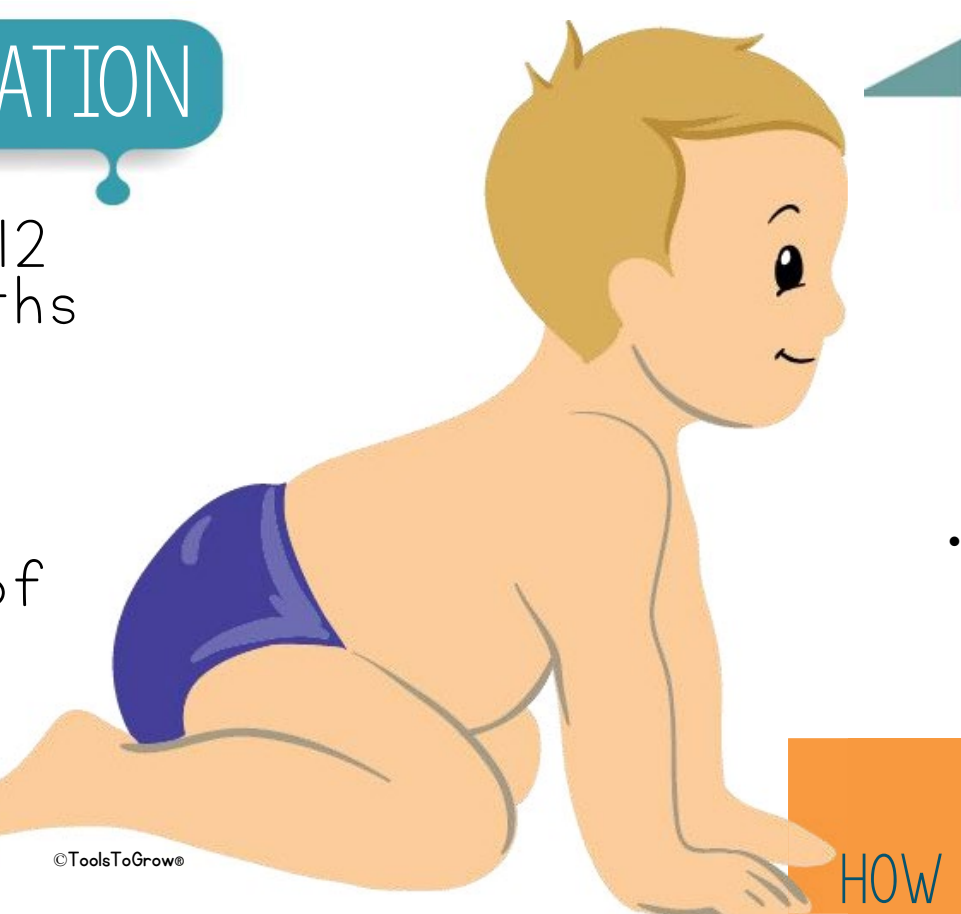
8 - 12 months

### STIMULUS

Flexion and extension of the head (neck)

### RESPONSE

- With neck flexion the upper extremities will flex and the lower extremities will extend.
- With neck extension the upper extremities will extend and the lower extremities will flex.



### IMPORTANCE

- Assists in the development of bilateral patterns of body movement.
- Allows child to move up against gravity and assume quadruped.

### SIGNIFICANCE IF PERSISTS

- Interferes with reciprocal creeping.
- Impairs dissociation between the two lower extremities and transitioning between quadruped to sitting to kneeling to standing and vice versa.

### INFLUENCE OF RETAINED STNR

HOW THESE MAY PRESENT IN EARLY CHILDHOOD & SCHOOL AGE CHILDREN

- Decreased Strength and Balance
- Difficulty Sitting in Chair/Desk
- Floor Sitting: More likely to W-Sit
- Walking: May predispose children to walk up on their toes rather than flat feet
- Impairs Writing
- Immature Ball Handling Skills

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## TONIC LABYRINTHINE-PRONE & SUPINE (TLR)

### ONSET

Birth

### INTEGRATION

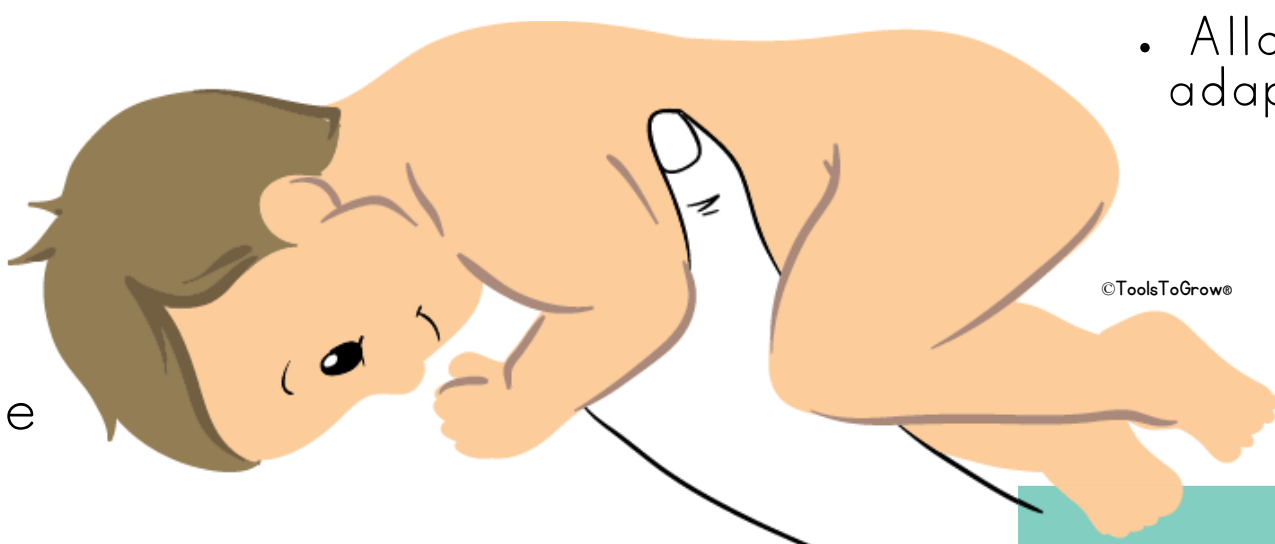
6 months

### STIMULUS

Change of orientation of the head in space

### RESPONSE

- In prone flexor tone will predominate with arms flexed by the child's chest.
- In supine extensor tone will predominate.



### IMPORTANCE

- Allows baby's posture to adapt to that of the head.

### SIGNIFICANCE IF PERSISTS

- Interferes with movement that requires smooth grading of flexor and extensor muscles.
- Affects anti-gravity control for developing mobility.

### INFLUENCE OF RETAINED TLR

HOW THESE MAY PRESENT IN EARLY CHILDHOOD & SCHOOL AGE CHILDREN

- Walking: May present as extra cautious
- Lacks strong arms necessary to protect from trips and falls.
- Sitting: Slouches while sitting in a chair.
- Writing: Leans down over the page when writing.
- Balance: Difficulty with stairs, curbs, steps.

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## EXAMPLES OF INTERVENTION POSITIONS

PRONE



4-POINT QUADRUPED



PRONE EXTENSION



2-POINT QUADRUPED



SUPINE FLEXION



SQUAT



SIDE LYING



TALL KNEEL



SIDE SIT



ONE-HALF KNEEL



LONG LEG SITTING



STANDING

